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# THE PHYSICAL EDUCATION

AND

# DEVELOPMENT OF CHILDREN:

IN THEORY AND PRACTICE.

FOR SCHOOLS AND FAMILIES.

INTENDED TO SHOW THOSE INTERESTED IN THE WELFARE OF CHILDREN THAT THE BODY SHOULD BE CULTIVATED AND DEVELOPED WITH THE MIND, AND POINTING OUT THE MOST APPROVED MEANS OF ATTAINING THAT END.

BY

W. H. ST. RUTH,

PROFESSOR OF GYMNASTICS.

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“The neglected or improper physical education of the young is a gigantic evil of modern society. The ill-health of subsequent life is ordinarily traceable to this source. A reference to the future man or woman must always regulate the training of the child. This has been neglected. Nature's laws have been violated, and the full penalty of transgression paid. “I. BALBIRNIE, M.A., M.D.”

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WITH 27 ILLUSTRATIONS.

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## P R E F A C E.

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THE following thoughts have been suggested by a considerable professional experience in a "living stream" of both sexes, where beauty and deformity presented themselves in almost every variety. The author is actuated simply by a desire to benefit the rising generation, which must be his excuse for appearing in print.

*Lygon Cottage, Adswood, Stockport,*

*March, 1872.*



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# THE PHYSICAL EDUCATION

AND

## DEVELOPMENT OF CHILDREN, &c.

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The solution of the great and important problem, the comprehension of which will deliver the greater portion of the human family from the dominion of disease, and permit them to enjoy life to the utmost length, and health to the utmost extent, permitted by Nature—the utility to strengthen every organ of the physical system, and supply it with the greatest power of resistance against all external influences:—*all this is contained in the single word Gymnastics.*—DR. K. W. IDELER, *Med. Councillor, Professor of Physiology, Berlin.*

What thoughtful person can reflect upon the objects of human life without seeing that not only is the highest development of the muscular system a great advantage to those who follow mechanical occupations, but of vital importance likewise to those who fill the ranks of intellectual life, and who require as a condition of success good health and strong vitality? Only a *whole* man is capacitated to perform in the best manner the tasks of life. Is it not an aim worthy our highest efforts to develop our whole being to its fullest capacity?—to carry forward to full fruition those germs which, like the slumbering buds of a plant, exist within us, awaiting the period of their development and ripening. That which man is in himself, that which he possesses in his own person, his intellectual and physical capabilities, constitute his only permanent reliable capital! If, then, a method is opened for the development of his physical strength—not at the cost, but to the advantage of his intellectual powers—would he not prove himself a simpleton if he refused to follow such a path?—D. G. M. SCHREBER, M.D., *Director of the Medical Gymnastic Institution at Leipsic.*

Of all the causes which conspire to render the life of man short and miserable, none has greater influence than the want of proper *exercise.*—DR. BUCHAN.

WHEN physical exercise is neglected, the other laws which regulate our growth and development, even when most carefully applied, avail but little; and while sufficient exercise will make up for many other deficiencies, nothing can compensate for its loss. Hence its necessity to the health, growth, perfect development and strength of children, who, unfortunately, from one cause or another, are rarely brought within its influence to an extent

adequate to their wants ; because, notwithstanding its being co-existent with life itself, it is but very imperfectly understood. Children are sent to school, as a matter of course ; the mind must be cultivated. Everyone admits the absolute necessity of developing whatever intelligence Nature has been pleased to endow us with ; but how small is the number who realise the necessity of cultivating the physical as well as the mental powers, or who know and act upon the fact that to have an active and vigorous mind we must have a healthy body, "*mens sana in corpore sano*," that if we exercise the former at the neglect and expense of the latter, both must suffer ; that it is our bounden duty to preserve an accurate balance of both, to the end that we may become *all* that Nature intended us to be.

The strength and capacity of the mind is no doubt decided from the beginning of its organisation, and we know that the greatest care is necessary to develop it to the full *extent* of its capacity, and that its intelligence depends on the care observed in its training. It needs no philosophy to teach us that in all this the body and the mind are so mutually dependent the one upon the other as almost to be identical : one should not be educated and the other neglected. On this subject Dr. Balbirnie says : "The physical and mental powers are intimately connected, and essentially depend on each other : if the body be unduly wasted by labour, nervous energy will be withdrawn from the intellect—the mind languishes : if the nervous energy be unduly expanded by prolonged mental exertion, it will be withdrawn from the body—the body languishes—in either case the equilibrium of health is destroyed—disease is the result."

Hufeland says : "When children sit in a room and have their young minds urged to action, *we take from them the noblest part of their strength, and consume it in the function of thinking.* Thus growth is retarded, the limbs improperly developed, the muscles weakened, digestion becomes bad, scrofula appears, and then ensues a great predominance of the nervous system." Obviously this could be remedied by means of judiciously applied exercise. Many able and well-known authorities could be quoted to prove undeniably, that any unequal development of any one faculty or faculties at the expense of others is injurious to those unduly robbed. It is certain that mental

exertions weaken the physical frame the more they are unaccompanied by bodily exertion; and that those mentally employed who indulge in suitable bodily exercise can undergo a greater mental strain than those who neglect it.

In most families, and in every school, are to be found children with active brains and inert or defective bodies; to such, a good and systematic physical training is of the first importance. The culture of the mental unaccompanied by that of the physical powers has resulted in the total wreck of many a brilliant mind, and has sent the transgressors into a premature grave with half their work undone. According to the Registrar General's returns, the value of life increases till the age of twelve years, when it culminates; then decreases till at the age of twenty-four the chance or probability of death is the same as at birth. Now, if this be true, and man's life is averaged at thirty-five years, it is obvious that, if physical exercise be one of the laws which regulate our growth and development, the child should have it in its most perfect form long before the age of twelve years and continued through its school life, to the end that its stock of vitality may be increased so as to enable him the better to withstand the wear and tear of after life, which is hugely increased after our entrance upon the great stage to act our parts as responsible, intelligent, and productive members of the human family.

We are, to a great extent, responsible for the *physique* of the generation which is to follow us, and yet it is to be feared that few fully realise this responsibility, and perform their duty for its own sake.

The age at which children should be put to systematic bodily exercise, or gymnastics, is a matter deserving our serious attention, and is, to a very great extent, dependent on one or both of two considerations, viz., the physiological value and arrangement of the *system* to be pursued, and the ability of the teacher to accommodate himself to the child's capacity, to judge accordingly what it wants, and how that want is to be supplied. Of the arrangements, or systems of exercises, best adapted to the requirements of children more anon. Here it must be distinctly understood that the efficacy of teaching will be greatly enhanced by the teacher's employers making the road clear for him by enforcing a mild but firm discipline, thereby enabling him to carry out what is often very



irksome to children, viz., method and close attention to what is being done. It is a matter of regret that in our day gentlemen's children are not so often required to do what is good for them, being, in too many instances, permitted to do pretty much what pleases themselves.\* A healthy motive, actuated by a sense of duty, and carried out with fidelity, it is to be feared, is the exception. This statement is to be considered as bearing only on the interests of Physical Education. Excessive kindness, sometimes indifference, or ignorance of the result, or want of firmness, causes parents frequently to allow children's judgment to decide in matters pregnant with good or evil consequences in the future (matters of which they themselves are unable to appreciate the value), and who more frequently give utterance to the expression of their feelings than their judgment. The young lady, for example, with narrow and straight chest, drooping shoulders, and projecting shoulder-blades, complains that the "drilling lesson" fatigues her and makes her feel stiff next day: of course, in too many instances, the gymnastic lesson is given up, while *very often* it is the *only* means under the sun by which she can hope to live to any considerable age, or enjoy even moderate health while she does live. When the children of poor parents are (as is, alas! too often the case) deprived of good air and proper exercise, the evil effects from such a combination is frequently attributed to ignorance or poverty, or both; and there can be no doubt that these two giants send annually thousands to untimely graves. But can people of the well-to-do and educated classes say, conscientiously, that they do their duty in all respects to their children? Perhaps all act according to the light they possess. It is to be hoped such is the case; but it is also to be hoped, for the sake of the generation to come, that the light from the lamp of physiological science will emit a more brilliant light, and spread its rays over the length and breadth of our land. At present people learn anything and everything but a knowledge of themselves. They know from hearsay that they have a heart, lungs, liver, kidneys, and stomach, but only from the fact that these organs are frequently mentioned in connection with the diseases peculiar to each; they possess no notion of their functions nor the means of preserving them in

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\* Discipline enforced by a teacher, when unsupported by parental or other authority, is often a vexatious failure.



healthy order. The steam engine will not continue to work harmoniously without very great care, and a knowledge of its mechanism is necessary in the person who has the care of it; but the human engine, so complicated—"so fearfully and wonderfully made"—and so liable to become disarranged from its complicity and from the enormous amount of work forced upon it, does not even excite our curiosity. That we should leave disease and its management to the medical profession we cordially concede; but we hold that it is the duty of everyone to know the best means of preventing and warding off disease, and this cannot be done effectually without our becoming more intimately acquainted with ourselves. Galen tells us that "if diseases take hold of particular parts of the body, there is nothing more sure to drive them out than diligent exercise." Lord Bacon declared that "there was no disease whose further development could not be prevented, or which at the commencement could not have been cured, by bodily exercise." What a boon would be conferred on humanity if some leader of the "upper ten thousand" would institute fashionable parties for the purpose of mild systematic gymnastics, in which music might be made an essential and inseparable element, and the exercises be thereby made as attractive as the dance! The prospect, it is to be feared, is a remote one.

It ought to be no secret to every person of ordinary intelligence that the body is composed of innumerable atoms, each of which is brought up and deposited in the human structure by the blood in its circulation through the system. Each atom has "its birth, life, death, and final removal" from the body, and makes its exit, either from the lungs in respiration, or through the pores of the skin in perspiration; the result is we are constantly undergoing change. This change is most thorough when we are in a state of activity, but in that state of activity which involves an increased action of the heart, an accelerated circulation, and an active, open condition of the pores of the skin to enable nature to throw off the load of effete material, the presence of which enfeebles her efforts, and the non-removal of which daily threatens to expel life from its tenement. Every action, thought, or movement of the human being is attended by the waste of a certain amount of our structure, the waste being in proportion to our physical activity; but, to counteract the constant waste of the active individual, the blood

in its life-long activity brings up new material to replace the old, and a man is strong according to the freshness or newness of the atoms of which he is composed. This will at once account for the feebleness of those who lead sedentary lives, as it does for the strength of those who indulge rationally in physical labour; and a man is strong or weak, physically, according to his employment. Hence the Herculean arms and chests of some successful gymnasts—the powerful arms of the blacksmith, the shapely leg of the pedestrian, and last (though no less deserving of our attention, if not our admiration), the pale face and trembling limbs of the indolent and self-indulgent. When Nature is neglected, she will, slowly but surely, in the end take her revenge. If her laws, intended to regulate our growth and development, are not carefully observed, we incur illness in one form or another, and very often shorten our lives, it may be, just when they are becoming most valuable. Is not the necessity of making ourselves acquainted with what Nature, in her bounty, has assigned for our good here made apparent?

The great difficulty in the way of Physical Education is ignorance of its real influence, and the means at our disposal for effecting it; but the present growing interest in the matter holds forth a hope and a promise of better things. Systematic exercise is yet in its infancy in this country, and, unless a general organisation be introduced and carried out by parents and the heads of educational establishments, both elementary and advanced, it will be but at best a feeble and disjointed affair for many years to come. It may not be out of place here to point out that the slovenly habits contracted by children lead to much mischief. While the body is growing it is very susceptible to good or bad impressions, and grows up according to the influence brought to bear upon it. Innumerable cases might be cited of the habit of standing with the weight of the body on one leg—sitting in a favourite position at a desk or table, or habitually lying in bed in such a manner as to give a preference for some set of muscles at the expense of others, and so doing much towards marring personal beauty. Very many cases of spinal curvature have been brought on in this way. Let us examine the mere act of stooping, and sum up a few of the most probable evils which may and do result from it.

The muscles of the spine and upper half of the body generally are relaxed, the shoulders come forward, the chest is contracted, the lungs displaced and deprived of the space necessary to encourage and maintain healthy growth : the *diaphragm*, or flooring of the chest cavity, presses on the stomach and liver, and the spine becomes disfigured. What is the result ? Delicate health, "low vitality," which if not remedied during growth, and while the body is capable of improving influences, will unerringly end in impaired digestion—feebleness of the heart and disease of the lungs and liver. Such, with their concomitant results, may be the punishment of the indolent ; nor is there any hope of cure out of the pale of exercise and good air. Again, the habit of throwing the weight of the body on one leg causes many young people to become deformed in the shoulders, spine, and hips, to such an extent as to spoil their deportment and beauty of figure for life, if such persons be not attended to and the mischief remedied during growth.

That the remedy for these evils is to be found in a systematic set of physical movements, pure and simple, admits of no argument ; yet there are too many who prefer a doctor's bill to letting their children become healthy by rational means. Such are, unfortunately, not to be aroused out of the mistaken and cruel neglect either by dissertations or lectures. Movements, well directed, will lift the chest, force down the diaphragm, and enlarge the chest cavity—thus making room for a healthy exercise of the natural elasticity of the lungs, and a proper inflation of every air cell in them, so that the arterial blood is oxygenised and enabled to free itself of its effete and therefore vitiated material, gathered in its journey through the system, to be discharged by means of the lungs in respiration.

Children are often set to gymnastic exercises for a quarter, or perhaps half-a-year. This step is prompted by a variety of motives, but, as a rule, the teacher of exercises is expected, by the use of some magical power supposed to be possessed by him, to shape the body to order, as the potter does a piece of clay. Such people, of course, expect too much, and are as certainly disappointed. To make up for former neglect, a youth should, towards the completion of growth, have special and frequent attention and care bestowed upon his physical structure, because as the joints, cartilages, ligaments, and the bodily structure generally become set, the effects of exercise are neither seen nor felt as soon as at an earlier stage of life.

For a young child to benefit fully by exercise, *system* must never be lost sight of, neither in the nature, amount, nor application of the exercises resorted to. If a child be brought, only occasionally, under the influence of a system, it cannot reasonably be expected to accomplish all that may be desired. We might as well expect good to result to the mind if we keep the little ones at home from school, or from mental training, for six months in every year. If children are interested they *will work*, and if that work be properly apportioned according to individual capacity and requirements, good must ensue; but the work must be systematically persevered in from childhood, and through school-life continued till full growth be attained. One hour weekly will be found sufficient to carry this out faithfully; in some cases half-an-hour's exercise daily would not be too much to remedy the result of neglect, or to build up feeble constitutions. The teacher's discernment is here much called for. We have known a lady to pronounce an able man a "charlatan," an "empiric," because he could not make a family of stiff-jointed, delicate children supple and graceful in *ten* lessons; she "could not afford to pay any more," and yet she has spent hundreds of pounds in their fashionable accomplishments.

The ancient Greeks, who were ignorant of anything deserving the name of physiological science, found that exercise made man strong; and to the end that such strength should be the pride and glory of their young men, placed their children, at a tender age, in the hands of the professor of bodily culture till the youngsters became all that was desired or expected. They exercised nude, and allowed the body to assume its normal shape.

What a contrast when compared with the young gentleman "of the period," whose vest prevents deep breathing, and whose trousers are so tight that he can no more sit on his heels, if required, than his sister can run a hundred yards without palpitation, pain in the back and side, and being blown to such an extent that she requires several minutes' rest before she can speak to be understood. Parents in every position or rank of society are guilty of the grossest folly in the dress of their children, and through either ignorance or vanity, often of both, actually aid the undermining of their health. The dress of children, male and female (more frequently the latter), are so



tight that it prevents the lifting and expansion of the chest which should result from deep breathing. Cases are to be seen daily, in which the frock or jacket is so tight in front from shoulder to shoulder, that compression of the chest is an inevitable consequence; yet the tailor and dressmaker seldom fail to give them every facility for becoming round shouldered by leaving abundance of cloth across the shoulders, where it is least needed. The folly of this style of dress is not always seen by those most interested in the little sufferers, as it would be if they "knew more about themselves." Surely the meanest capacity can see that for the body to grow naturally and healthily it must have *plenty of room*: the body and its organs cannot perform their functions in those all important matters, respiration and circulation, if the clothes which cover it are straitened and confined. Dr. J. Balbirnie says in reference to this subject: "When the distinctive dress of the sexes begins to be worn, let mothers avoid laced jackets or corsets for their girls, as sources of muscular weakness and causes of spinal deformities.

"Tight stays are a crying evil of modern society; the compression of the yielding parts of the chest, of the heart and blood vessels, hinders respiration—preventing full expansion of the lungs.

"The varied exercise and repose of the muscles is the only rational way to their general invigoration, and the only safe mode of imparting a graceful carriage."

Dr. Lewis says; "I believe I echo the voice of my profession when I declare that the seeds of consumption are planted in thousands by mistakes in dress during infancy and childhood. To correct these permit me a few practical suggestions.

"The skirtbands must be left very loose. If you would give a baby's lungs and heart the best chance for development, the dress about the chest and waist should be so loose that, if the child be held up by the shoulders, its entire dress, except as sustained by the shoulders, will fall to the floor.

"The bones surrounding the small feeble lungs are so soft and pliable, that under the slightest pressure they will yield, and the capacity of the lungs be reduced."\*

All this may be said of children of an elder growth, and it remains for parents to decide whether they will allow their

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\* "*Weak Lungs, and How to Make them Strong.*"

daughters' chests to grow as God intended they should, or have them compressed and distorted in the Parisian style—whether they are to be *rational* or *fashionable*: whether they will permit their children to enjoy life to the extent intended by Nature, or have them sent prematurely to the grave through disease developed by neglect and imprudence.

In the present state of Physical Education in this country we cannot be surprised at parents and many of the teachers of gymnastics being most charmingly innocent of any knowledge of the structure of the body they desire to improve and beautify, consequently both fail to appreciate the value of purely scientific and physiological arrangement or system. Indeed system is their stumbling block. Parents don't like paying for it, and teachers very often find it inconvenient to adhere to. When the importance of a method of training based upon any given physiological principle is explained, they generally admit its feasibility, or approve of it in warmer terms, but rarely accept and adopt it as something worth carrying out with fidelity.

We are not justified in finding fault with this state of affairs until we become in earnest, and have Human Physiology taught in every school in the land regardless of station or rank; and organised suitable institutions for the promotion of Physical Education, such as have for centuries been instituted for mental culture.

Considering our great wealth, intelligence, civilisation, and importance as a nation, we are, as a practical people, much at fault in this respect. Every country should have a system of *training teachers* of Physical Exercise, who ought to be able to see at a glance a child's requirements, and treat according to its individual strength and capacity.

Whether we look on exercise as a necessary evil or view it as a great blessing by which means health is regulated and life prolonged, it is obviously our duty to become acquainted with its principles, so that we may select what appears to us to be most rational and conducive to our welfare, what is most likely to supply our want, with but a minimum of the possible unpleasant contingencies that may arise from it. And if there is a means at our disposal which precludes those contingencies altogether, its adoption is scarcely a compliment to our common sense. That systematised exercise in some of its forms is



fraught with considerable danger to the unwary admits of no dispute. The elaborate gymnasium, with its bars, ladders, ropes, and poles (always associated in the minds of parents with broken necks and limbs), very often appeals to the youth's vanity, and urges him on till a certain degree of excellence is attained ; which *may* be all very well, but such industry would most frequently lead to better results if people were satisfied to work for health's sake only.

This desire to excel, as in the training for Athletic Festivals, frequently leads to excess, and young men make heavy calls on their stock of vitality to be some day rudely awakened to a sense of their folly : the bank of Nature at last dishonours their cheques, and with ruined constitutions they drag out a miserable existence. Intemperance in—call it the abuse of—gymnastics will surely bring retribution : it will “bring to the surface the life and power of the interior,” and a man, by becoming strong may become weak indeed. In proof of this many instances might be quoted. To avoid such a result every young man should consult a physician to direct him in the nature and extent of the exercise most likely to promote the object he has in view and most adapted to his capacity.

We now propose to give, for the information of all concerned in the welfare of the young and rising generation, a short explanatory sketch of the three principal methods of physical exercise in use in this country. These methods, for the sake of convenience, we shall classify under three heads, viz., the **HEAVY**, **MEDIUM**, and **LIGHT**, and leave our readers to decide which is the most applicable to their individual requirements, and most conducive to the future happiness of those whom they desire to benefit.

#### THE HEAVY SYSTEM.

This comprises all those exercises which involve heavy lifting, and movements on fixed apparatus, which need but little description. Most people are now familiar with the boasts of our big muscle men, who think nothing of 100lb. dumb-bells. We have seen some such men wrestling with a blacksmith's anvil, but confess ourselves unable to appreciate their wisdom.

Indiscriminate indulgence in this vast multitude of exercises, without plan or method, and without any pre-arranged ideas worthy of the name of system, has done more to damage

gymnastics in the estimation of the timid and the public generally than the effects of the most scientifically-arranged system will counteract for many years to come. Till a few years back this was, and indeed is now, to a very great extent, a wide field of confusion, offering every facility for accident to the unwary. Every fellow who has got up a certain amount of muscle without rupture or a broken neck feels justified in teaching others. The weakly and the strong—all alike—are by these allowed to struggle for the same goal and in exactly the same way, unable to distinguish “the natural and suitable exercise,” which “strengthens,” from the “false, or undue exercise, which weakens and injures.”

Elaborate books have been written on this mode of exercise : but those writers are like the gymnasts of the *gymnasia* which they have attended, who tax their ingenuity to produce the greatest variety of movements on each piece of apparatus, without any apparent physiological arrangement. When Mr. Maelaren, of the Oxford University Gymnasium, disclosed his admirable system of Physical Education, people at once saw how benighted the public mind had been on this important subject. His system has been “developed and matured by every means” the author “could bring to bear upon it by physiological theory and practical test:” it is the result of “his professional life”—“the work of a quarter of a century in a living stream of men and boys of every phase of strength and weakness.”

Discarding the *acrobatic* principle as much as possible, and leaving *tricks* out in the cold, the author of this scientific production may be said to have taken us out of the hands of the quack and given us a physician who bids fair to do his work well, providing we faithfully carry out his advice and use his prescription. The nation cannot be benefited, nor Mr. Maelaren derive his well-earned deserts, through a proper use of his system, till there is a supply of teachers likely to do justice to this English father of physiological system in Physical Exercises.

We have taught this system with most satisfactory results through insisting on the first course being thoroughly worked up before moving into the second, and this without moving into the third ; but the “arduous” exercises of the fourth course should be suggested to boys with great caution. They are more adapted to the body of the matured man who has been

well and carefully trained in his youth. Boys should be exercised for health's sake only, and without being haunted by that "mind-your-neck" feeling, which has a charm for those who make tricks their specialty, and dazzle us by their "brilliant" performances, giving rise to a foolish ambition in others. Exercise on fixed apparatus has done much good, and will continue to do good as long as people will not abuse it. For wisdom of arrangement and simplicity, combined with efficiency, Maclaren's system stands brilliantly alone.\*

I need scarcely add that the Heavy System shuts out ladies and delicate children, and is intended more to make the already strong still stronger, than to invigorate the feeble and delicate, whose wants are more generally felt and admitted.

#### THE MEDIUM SYSTEM,

As an organised whole, is purely modern, indeed new, and is the production of an eminent American physician.

If there is a means at our disposal of accomplishing all that is required by the body, with a view to promoting its health and securing that balance and harmony which should exist between body and mind, which will solve the "great and important problem" of Dr. Ideler, and deliver the greater portion of mankind from the grinding dominion of disease and enable them to enjoy health and long life, by strengthening the *organs* of the physical system, and by supplying it with the power of resistance against all opposing influences, it is to be found in the system of Dr. Dio Lewis, Professor of Physical Culture in the Boston Normal Institute, and Physician-in-Chief of the Boston Movement Cure for Consumptive Invalids, who now takes the lead as an authority on Physical Education, and whose principles and teachings are being very generally adopted throughout Europe and America.

Dr. Lewis has bestowed great attention on gymnastics from a physiological point of view, and may be called the gymnastic reformer of the 19th century, to whom we are indebted for the explosion of the old theory that heavy weights and cumbersome appliances are necessary to the formation of well-formed, strong, and pliant subjects. The peculiarity of this system lies

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\* Maclaren's *Physical Education*. Clarendon Press. Price 7s. 6d.  
 Maclaren's *Training*. Published by Macmillan. Price 7s. 6d.

in the apparatus and its mode of application. Instead of the usual gymnasium, with its elaborate appliances, we have light wooden dumb-bells, poles, rings, clubs, and small canvas bags filled with beans. The new, or Medium System, disregards the acrobatic principle altogether, and adopts the doctrine of light exercises instead of heavy exhausting movements (on the principle of velocity rather than weight), and cultivation of free posture, dash, precision, and presence of mind; the result of which is a beautifully harmonious development of the entire body, and an easy, graceful, self-reliant bearing, promoted by the flexibility and suppleness thereby attained.

“My object,” says the author, “is to present a new system of gymnastics, novel in philosophy, and practical in details. Its distinguishing peculiarity is a complete adaptation, alike to the strongest man, the feeblest woman, and the frailest child.”

This invaluable system is now extensively taught in this country. In Manchester, the following ladies and gentlemen are among its admirers and promoters, and have introduced it into the establishments of which they are respectively the head, viz.:—Dr. Adams, Victoria Park School; Miss Anderson, Ladies' College, Victoria Park; Mrs. Allison Elmswood, Stretford; Mrs. Gloyn, Acomb House, Greenheys; Miss Hunter, Ladies' College, Cheetham; John Kendall, Esq., B.A., Chorlton High School; Miss Pilcher, Cavendish Place, All Saints; Dr. Somerville, Hawthorn Hall School, Wilmslow; H. Templar, Esq., Holly Bank School, Cheetham Hill; Mrs. Thackray, Parkdale, Prestwich; Miss Wedge, Chetwynd Bank, Prestwich Park; James Wood, Esq., The College, Wilmslow; Miss Woodcock, Old Trafford; Mrs. Elton, Fern Lea, Fallowfield; Mrs. Barber, Castlemere House, Rochdale. These establishments are mentioned solely for the information of parents who may be desirous of sending their children to school in the neighbourhood of Manchester, where they may share the blessings conferred by a diligent use of this truly enlightened system of physical exercise, of which the following woodcuts are intended to convey as clear a notion as anything can do short of a practical display.



## BAG EXERCISES.

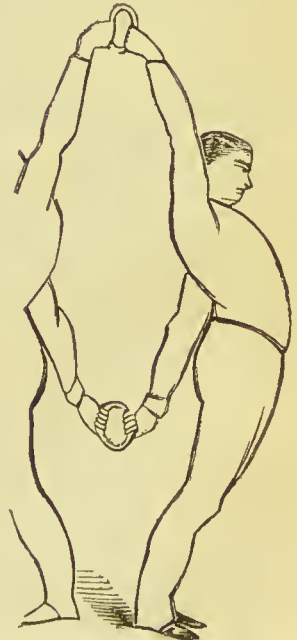
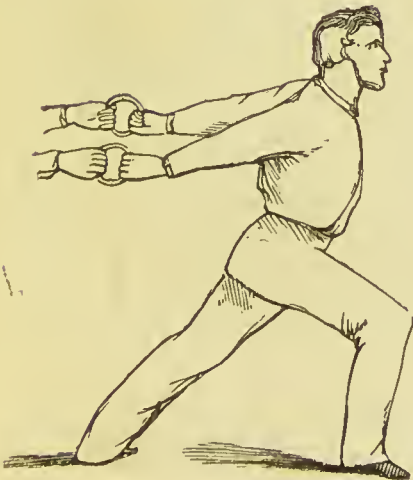


BAG EXERCISES.

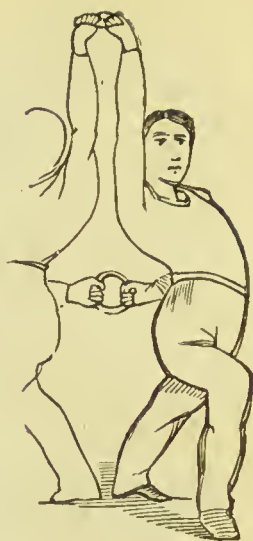




## RING EXERCISES.



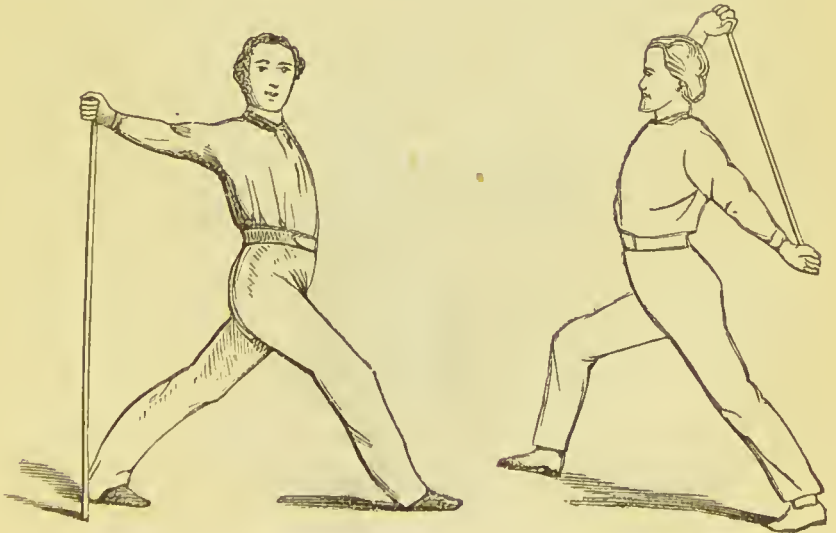
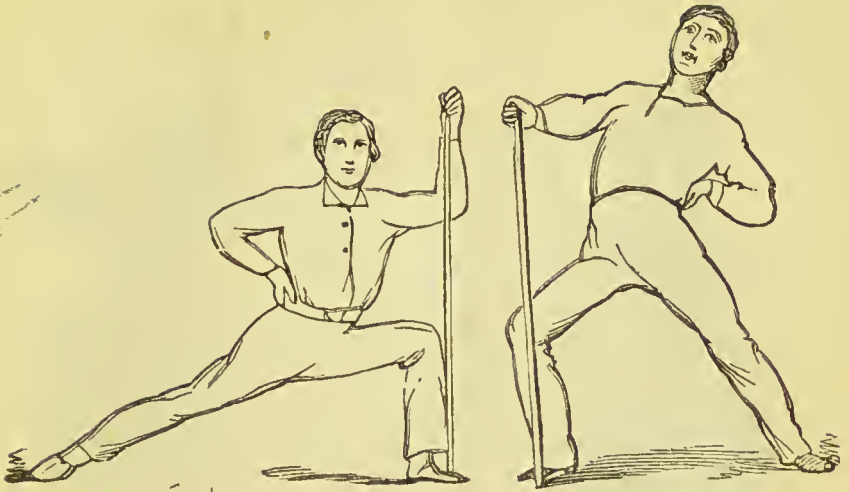
## RING EXERCISES.



## POLE EXERCISES.



POLE EXERCISES.



## DUMB BELL EXERCISES.



## DUMB-BELL EXERCISES.



With the assistance of these few illustrations, it will be perceived that every muscle in the body is vigorously exercised and brought into play. But only a closer acquaintance enables us to appreciate the arrangement in its mildness, thoroughness, and artistic effect.\*

### THE LIGHT SYSTEM.

This is a system of bodily culture which offers peculiar advantages to the weakly, and which demands the sincerest respect. Delicate children and invalids are the subjects to be most beneficially influenced by this system, which is known as "Free Exercises," and which consist of a variety of flexions of the limbs and trunk without any apparatus, although it sometimes requires the assistance of a second or a third person.

This kind of exercise is variously styled "Calisthenics," "Swedish Gymnastics," &c., and is most frequently heard of through its use in the "prevention and cure of chronic diseases by movements." It is the invention of P. H. Ling, who is described by his well-known disciple, Dr. Roth, of Cavendish Square, London, as "Professor at Stockholm, Knight of the North Star, and Member of the Royal Swedish Academy of Sciences." He laboured long and earnestly to perfect his "Free Exercises" and bring them into notice, and finally got them acknowledged and accepted by his country—hence the name Swedish gymnastics.

In this system the eyes, neck, arms, fingers, chest, trunk, legs, and feet are all mildly addressed by movements which are sure to result in good to those who use them; but they must be considered inadequate to the requirements of the strong and active. Dr. Lewis says: "The Free Exercises are profitable, and happily adapted to the schoolroom."

While this system is absolutely safe and advantageous when used judiciously, and for the delicate preferable to the "heavy" method, it lacks the velocity and dash of the Lewis system, and consequently the means of increasing vitality to any considerable extent. A healthy, active person would pronounce it a tantalisation.

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\* Dr. Lewis's *New Gymnastics for Families and Schools*. Published by W. Tweedie, 337, Strand, London; price 3s. 6d.—Dr. Lewis's *Apparatus* also may be had at Mr. Tweedie's; and Mr. John Heywood's, 141 and 143, Deansgate, Manchester.



## THE "PANGYMNASTICON," OR HOME GYMNASIUM.

This is the most complete *multum in parvo* in the gymnastic field. No home or school should be without one. Its object is to bring all gymnastic exercises within the range of one piece of apparatus. It is the invention of Dr. Schreber, of Leipsic, who says: "Upon a close examination of the Pangymnastic exercises, the conviction will be forced upon all that by no other means can such a variety of valuable exercises be reached." Again he says: "The anatomist, in examining the exercises here introduced, will not fail to discover that each and every set of muscles has received studied attention, while at the same time the general development of the man has been kept in view. The Pangymnasticon, as I am convinced by a wide experience, possesses strong attractions to lovers of gymnastic exercises, on account of the great variety and the graduated difficulties to be overcome. It will everywhere prove a source of unlimited interest in private houses."

This may be bought at the principal booksellers in our large towns. In Manchester, at Mr. John Heywood's, 141 and 143, Deansgate.

It is well shown in the following woodcut:—



## MILITARY DRILL.

Experience forbids us to recommend military drill for children. It is inadequate to their wants, and the time devoted to it might be employed to secure real benefit. This drill imparts a stiff artificial style of walking, called by its admirers "a military bearing," but the easy, graceful bearing of the officer, who has a minimum of drills, is not imparted by the drill sergeant. If such were the case, the rank and file, who have a maximum attendance, should excel their superiors in deportment. The officer's early training is more accountable for this, as it is more frequently attended to than that of his men, and his education enables body and mind to work in harmony.

## RUNNING EXERCISE.

Mr. John Towers, professor of singing and music in Manchester, takes occasion, in a recent publication, to say that singing has a most beneficial effect on the lungs, inasmuch as it is a means of strengthening them, and by a due exercise of their elasticity, in time results in an enlargement of the chest cavity and a consequent healthy growth and development of its organs. The same may be said of running. Beginning with a gentle trot, using the feet flat on the ground, and taking about 170 paces per minute, with the lips closed and breathing through the nostrils to prevent being soon blown, keeping up the pace as long as convenient without fatigue, will do much to prolong life. The distance and speed may be increased at pleasure.

Dr. Lewis says: "A man may stand still and lift kegs of nails and heavy dumb-bells until his shoulders and arms are Samsonian: he will contribute far less to his health and longevity than by a daily run of a mile or two." This principle—velocity rather than weight—pervades his whole scheme of physical education. Running was a favourite exercise with the ancients. Socrates is said to have strengthened his lungs by running up hill. Indeed, in all ages and countries it has been a favourite exercise, except with tightly-laced ladies and effeminate fops, who would, in all likelihood, burst their stays if they attempted it.

Perfect health depends upon perfect circulation: whoever promotes the latter will of a certainty possess the former; and

nothing more promotes good, sound health, giving circulation and respiration, than a moderate run. In support of our argument, we cannot do better than quote from Dr. Balbirnie on this subject:—

“The quantity of oxygen,” says the doctor, “taken into the system is the measure of the quantity of food necessary for its wants. This quantity of oxygen is determined by the extent of exercise taken—the number of inspirations in a given time.

“The capacity of the lungs to contain blood, and blood to contain oxygen, are determinate, not variable quantities. Hence the necessity of a *simultaneous* quickening of the circulation and respiration, to increase the amount of absorbed oxygen. This can only be done by bodily exercise.

“Thus are brought about the conditions most favourable to the throwing off of diseased action, namely, an increased energy of the living functions and organism; an augmented rapidity of transformations—of vital changes of matter within the system; the removal of old materials and the deposition of new; an increased waste demanding and receiving an increased supply.”

#### CONCLUSION.

In concluding this *brochure* we would like to say a few words on our favourite subject—the Physical Education of the Working Classes—and we sincerely hope that the time has or will soon come when it will be unnecessary to prove its advisability by argument.

Most close observers of these valuable sinews of the State will have noticed how injuriously many, if not the majority, of our clerks, artisans, shopmen, tailors, milliners and dress-makers, are affected by their employment, and admit that a good physical training during their school life would have prepared them better for their future avocations, and have enabled them to withstand more effectually its evil influence over their health by the strength and active habits acquired in youth. They would thus become more productive both to themselves, their employers, and the nation at large, and, consequently, more self-dependent; and the enormous number of rejections, which amount to more than one-third of the men enlisted by the recruiting department, would be reduced to a minimum.

Many benevolent people spend large sums in their efforts to improve the condition of the British workman: but is not a good physical training during youth of as much importance as the model cottage or the free library? A comprehensive scheme of physical education for the people of this country might easily be arranged with the aid of a small fraction of the wealth so benevolently contributed by the wealthy of the land. In every principal town in the kingdom are to be found professors of the various methods of bodily culture, who would be glad to instruct classes of pupil teachers from the several schools in their respective neighbourhoods at a moderate charge for each learner, who, upon having gone through a regular course, and received a certificate of efficiency from the professor of his district, could then teach the children of their schools; and, when the apparatus was once supplied, the expense would be at an end. If safety, thoroughness, efficiency, and economy of time and space had any place in the calculations of the promoters of such a project, they could do no better than select the system now taught on the Dio Lewis principle.

The professor who instructs the pupil teachers might make a periodical inspection of the several schools, and report on their efficiency; or the Government inspector might easily make himself acquainted with the principles of the system, and let gymnastics form an item in his report.

Some will, doubtless, object that there is no time for gymnastics in school hours; but this is the defence generally set up by those who fail to see the necessity of Physical Education, and consequently lack the will to secure it. It is our firm conviction, after a lengthened experience, that gymnastics, to be well and efficiently taught, *must* be done as a regular school lesson *in school hours*. There may be exceptions, but they are rare.